

## **DETAILED ACTION**

### ***Allowable Subject Matter***

1. Claims 1 and 3 are allowed.
2. The following is an examiner's statement of reasons for allowance: The prior art fails to teach or render obvious a controller comprising a casing fixed to an upper part of a main body; a valve rod arranged projecting downward from the casing and moving up and down in a reciprocating manner; an operating shaft arranged in the casing in a freely up and down moving manner; a power transmitting means for amplifying a force applied on the operating shaft and transmitting to the valve rod; a biasing means for biasing the operating shaft downward; and a pressure chamber, formed between a piston arranged on the operating shaft and a partition plate arranged below the piston and fixed to the casing, wherein the controller further comprises a slow start means for slowly moving the valve rod upward, the slow start means including the piston having an outer diameter smaller than an inner diameter of the casing and movable in up and down direction with respect to the operating shaft; a pressure spring, arranged between a spring receiver arranged at an upper part of the operating shaft and the piston, and wherein a male threaded portion is formed on the operating shaft at an upper end of the operating shaft, a female threaded portion for direct threaded engagement to the male threaded portion is formed at an inner periphery of the spring receiver, the spring receiver being screw fit to the operating shaft, supported to the casing in a non-rotatable and up and down movable manner, and the elastic force of the pressure spring being

adjustable by the spring receiver moving up and down when the operating shaft is rotated.

3. Takashi et al. (JP 07-019369) and Itoi et al. (U.S. Pat. No. 5,556,072) were considered most pertinent to applicant's disclosure.

Takashi et al. discloses the invention as essentially claimed, except for the power transmitting means for amplifying a force applied on the operating shaft; a valve rod, in addition to an operating shaft, arranged projecting downward from the casing and moving up and down in a reciprocating manner, and wherein a male threaded portion is formed on the operating shaft at an upper end of the operating shaft, a female threaded portion for direct threaded engagement to the male threaded portion is formed at an inner periphery of the spring receiver, the spring receiver being screw fit to the operating shaft, supported to the casing in a non-rotatable and up and down movable manner, and the elastic force of the pressure spring being adjustable by the spring receiver moving up and down when the operating shaft is rotated. Itoi et al. discloses a power transmitting means capable of being combined with Takashi et al. for amplifying the force of a valve rod. However, neither Takashi or Itoi disclose wherein a male threaded portion is formed on the operating shaft at an upper end of the operating shaft, a female threaded portion for direct threaded engagement to the male threaded portion is formed at an inner periphery of the spring receiver, the spring receiver being screw fit to the operating shaft, and the elastic force of the pressure spring being adjustable by the spring receiver moving up and down when the operating shaft is rotated. Takashi's spring receiver is adjusted by rotating an element (53) that allows axial sliding motion of

the shaft (14) in order to allow sealing and unsealing of the seat (13). It would not be an obvious modification to form the threads on the shaft with direct threaded engagement on the spring receiver wherein rotation of the shaft adjusts the pressure of the spring, as such a modification of Takashi's shaft would render the shaft (14) inoperable to open and close on the seat (13). Such a modification to Itoi's shaft (21) would also not be obvious and would be undesirable since it requires axial movement as well.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Pat. Nos. 6,997,209 (Ejiri), 5,253,671 (Kolenc), 5,215,286 (Kolenc), 6,932,315 (Ejiri), 6,138,712 (Hirose), 5,906,353 (Someya et al.), U.S. Pub. Nos. 2006/0076528 (Tokuda et al.) and 2003/0160202 (Boecking) also disclose similar power transmitting means.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARINA TIETJEN whose telephone number is (571) 270-5422. The examiner can normally be reached on Mon-Thurs, 9:00AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ROBIN EVANS can be reached on (571) 272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. T./  
Examiner, Art Unit 3753

/John K. Fristoe Jr./  
Primary Examiner, Art Unit 3753